

# INHABITABLE WORLDS

IS THE

UNIVERSAL LAW OF NATURE

AS SEEN FROM

Material and Spiritual Standpoints.

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A LECTURE DELIVERED BEFORE THE

Liberal League of Jacksonville, Florida,

FEBRUARY 14, 1892,

BY WILLIAM FRETTS.

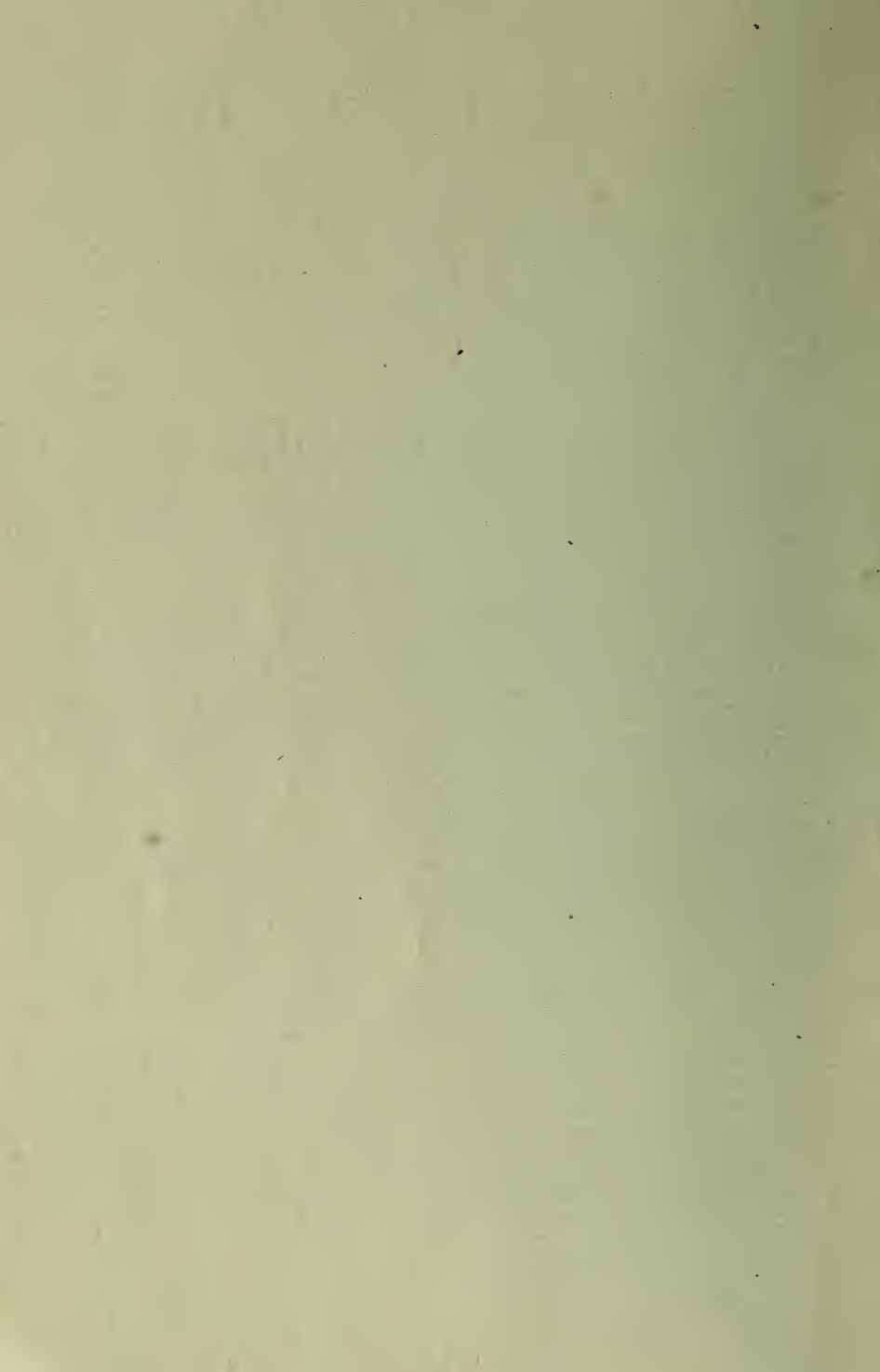
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They might as well try to reach the shining sun,  
Or try to undo what nature has done,  
Or avoid the death that is to come,  
As to fight against nature and her son, the truth.

WM. FRETTS.

Q.B. 54  
F9

## WORLDS OF LIFE.

Worlds beyond worlds in infinite extent,  
Life upon worlds is but a natural event,  
Archipelagos of worlds fill infinite expanse,  
Multitudes of worlds are seen as we advance.  
Worlds of life, Oh, what sense of delight—  
How our souls grow in love through this beautiful sight,  
What a joyous pleasure as we delineate right.  
Those worlds of life so eternally bright,  
See how they glitter, all colors of light,  
With their beautiful tints and sparkling white!  
Oh, splendid worlds and homes of life,  
What wonderful power guides your endless flight,  
Through eternal cycles of day and night.  
Oh, thou eternal one, whose presence bright,  
With grandeur fills all space with life,  
The eye that is forever bright,  
Unchanged through times eternal flight,  
When stars and worlds have ceased their light,  
Rolls on in Death's everlasting night;  
Or with life eternal in love and light,  
And blessed by thee, O judge of right!  
The power that rules all worlds alike,  
We call you God, have we *guessed you right*,  
Or is it NATURE that rules our flight,  
And fills all space with glorious life,  
And gives us love and sense of right?  
Worlds of life in your eternal flight,  
What power rules and guides you right?  
The power that is, and ever bright  
With grandeur fills all space with life;  
Whose thoughts vibrate in eternal flight,  
In endless death or everlasting life;  
The power that rules we do adore,  
God or nature we know no more.

FRETTS.

# OTHER INHABITABLE WORLDS.

LADIES AND GENTLEMEN:

Astronomy is the most ancient of all the sciences. The study of the stars is doubtless nearly as old as man himself, and hence many of its discoveries date back of authentic records amid the dim mysteries of traditions.

During the past few years great advances have been made in astronomical science. This is due to the liberty of speech, the freedom of thought, the improvements in astronomical instruments and in methods of calculation.

There is probably no science so vastly important and yet so little understood by the masses of people as astronomy. It is a grand study. It is above all others for it embraces the whole of the universe with all of its families of suns and planets.

Now, it is very important that we should know that all of the general facts, various laws and principles which constitute the science of astronomy of today are based upon the most rigid mathematical or other scientific demonstrations. This is not only very important but it is also a truth which it is absolutely necessary should be well fixed in the mind if you would comprehend anything of the infinite speed, bulk and distance dealt with by the astronomer of today. This point well understood will form the basis from which we reason. We must all admit that every person reasons from his own standpoint of knowledge. That is, we must admit that the facts a man obtains during life form the basis from which all his perceptions, whether true or false, radiate. Thus, when facts differ, men differ. There are two sources from which

we obtain facts. The one rests upon scientific basis; the other rests upon supposition, and that supposition, in many cases, as in the many forms of religions, rests on the traditions of a very ancient and superstitious people. To uphold these misty legends requires an army of 70,000 people in the United States alone, educated in all of the arts of argument, whose duty it is to sermonize in support of mythical hypothesis and in opposition to the truth.

Christianity has, since its very infancy, made war against every thought that would elevate humanity, and has always given his Satanic majesty the credit of making all scientific instruments and discoveries. And today they say that modern spiritualism and all of its phenomena are the works of their christian God made devil.

Now it is a well known fact that superstition and prejudice gives rise to an utter disregard of reason, and that millions of people have suffered death in all of its horrible forms, a sacrifice to a man made God. And today an infinite number of the most fearful crimes are being committed all over the world by people who labor under the false assumption that they enjoy a direct guidance from a God on high. These poor and misguided mortals, who through superstition and prejudice, use up their lives in making war against truth; these believers of creeds and forms whose ancestors caused our scientific forefathers to be burnt at the stake, and made martyrs of the best brains that the earth had ever produced, who have ever pursued truth with fire, sword and slander, are still in the dark meshes of superstition, and still battling against truth with the same ingenuity as did their forefathers of the inquisition, who held and preached the hypothesis that the Bible contained all of the truth—aye, even all of the knowledge necessary for all mankind.

But superstition and ignorance are retiring before the



mighty power of truth as it rises from the burnt and bloody battle-fields of the past. The iron clamps and shackles, the blackened post and ashes, the prison cells and dungeons, the burnt and mangled flesh of martyrs, are all unsilenced witnesses to the murderous attempt to strangle and subdue truth. But the assault has failed. Truth cannot be annihilated! They may cover it with centuries of ignorance, superstition, blood, and crime, but it will shine forth as the glorious sun bursts through clouds of mist. Truth is as old as time and as indestructible as space. *It is eternal.*

Now as to the other theory—that is, the scientific theory. To explain this we must first inquire what is science itself. It is the knowledge of principles and causes; the comprehension and understanding of truths or facts arrived at through the investigation of truth. Now a scientific theory is a theory based on scientific facts, and the term scientific theory demands that there shall be fact and that that fact shall be proven. I will explain.

The vortex hypothesis of the movement of the planets, formulated by Descartes in the seventeenth century, never became a theory because it was proven false and discarded, but Sir Isaac Newton's hypothesis that gravitation causes planetary motion was proven true and thus became a theory. Ptolemy's hypothesis that the earth was the center of a system of eight immense hollow spheres of crystal never became a theory for it was proven false. The Copernicus hypothesis that the sun is the center of our solar system, that the earth is round, that it turns on its axis, and that the earth and other planets revolve around the sun, was at first bitterly denounced as visionary and even sacrilegious, but it was proven true and thus became a scientific theory, in accordance with which, the worlds go rushing on around suns, driven by that infinite power that



keeps all matter in the universe in rapid and perpetual motion. A power that is as old as matter and that has, during all the eternal past, moved planets around planets, and planets around suns, and suns around other suns, and suns around their sidereal systems, and every sidereal system in the universe around every other sidereal system, making a grand movement of all. This power is natural, and nature *is* the God of the universe and has *no* superior.

Nature is all wise and knows the secret of all things and puts into action the most feeble as well as the most powerful forces, and renders all its creations answerable, without anything being able to place any obstacle in the way of the manifestations of its powers. Nature is infallible and rules the universe with an unerring wisdom, and all matter, and all mind are its willing and constant slaves, bound to it by the eternal and indestructable law of love, harmony and obedience. And the same conditions will produce the same results at the present moment, as they did in the infinite past, and as they will in the infinite future. And it is through this power and by the study of the laws of nature, that man has possessed himself of all the theories that give to us this modern civilization, and has elevated humanity in general so far above his former superstitious and ignorant condition.

Oh, how the study of nature and her laws elevates the soul of man, and creates the all pervading desire to teach all mankind the grand and glorious beauties of nature's creation, that truth may take the place of ignorance and superstition.

Nature is an infinite variety of forms and colors, visible and invisible, and is around us on every hand. Her works are as charming in the infinitely small as in the infinitely great.

In the field of the microscope we can see the little

beauties of many colors, though born to live but a few moments of time, and so small that thousands would be required to fill the space of a cubic inch; yet nature has arranged their little bodies in accordance with their necessities, with as much care as she did the beautiful birds of our Southern clime. You may see in the small dew drop, as it sparkles in the morning sun, all of the beautiful colors of the gigantic rainbow. Though born to live but a small part of a second, to be brushed into eternity by the gentle kiss of the morning breeze, yet nature has, in this minute spectrum, displayed all the sublime beauties of the great distant star clusters, where red and green blend their hues together and gold and sapphire intermingle their delicate tints in this microscopic world—the dew drop.

Thus the study of science moves the gates of nature ajar, and as our eyes behold the gorgeous splendor in nature's laboratory, our souls become charmed with the sublime harmony of nature's grand and glorious truth.

Nature is everywhere the same, and has made life so necessary on this little earth, that the smallest piece of matter, of suitable proportion, does not exist without serving as an abode of living beings, and man has failed to find any one of those beings whose ancestry does not extend back into the infinite past. Nature never has created one single, lonely, solitary object, but has always created them in infinite numbers. How absurd that nature should create but one man, one tree, one fish, one horse, one star, one little inhabited globe, or but one anything.

Men have always thought themselves vastly more important than they really are in the infinity of the universe. They have had the vanity to pretend that all of creation was made for them, while in reality the whole creation does not even suspect their existence. We live in a world that is no exception among the heavenly bodies and

which has not received the least privilege. And why should it? The earth is one of the smallest planets in our solar system. Of the eight planets that revolve around our sun there are four larger than the earth.

Names.	Mean distance from the Sun in miles.	Mean diameter in miles.	Volume, earth's = 1.
Sun,		866,400	1,310,000.
Mercury,	36,000,000	3,030	0.056
Venus,	67,200,000	7,700	0.920
Earth,	92,793,500	7,920	1.000
Mars,	141,500,000	4,230	0.152
Jupiter,	483,000,000	86,500	1,303.
Saturn,	886,000,000	73,000	770.
Uranus,	1,800,000,000	31,900	65.
Neptune,	2,800,000,000	34,800	85.

Mars with his two moons is the first planet outside of the earth's orbit, and is the nearest to the earth of the superior planets. Now here we have a world very similar to the earth with all of its surroundings. Through the telescope we can see his land and water, his atmosphere and clouds, and his snow poles as they grow large in the winter and small in the summer. His days are of nearly the same length as ours; his year is nearly twice as long. Mars receives a little less light and heat from the sun than the earth does. Now, the planet Mars may or may not be inhabited, but as far as we know the conditions are as favorable there for the existence of living beings as they are here.

Venus is the first planet inside of the earth's orbit and the second one from the sun. She differs but little from the earth, except that she receives twice the light and heat from the sun that the earth does. Her days are about the same length as ours; her year is about 224 days. Through

the telescope we can see her mountains, her clouds and atmosphere.

To what end have these planets received years, seasons, months, and days, and why does not life come forth on the surface of these worlds, which enjoy like ours the benefits of nature and the same light and life-giving sun? For it is from the sun that we receive all life, and the quality of that life can be rated by its source. Then let us compare our source of life with that of other heavenly bodies.

In the first place there are three well defined classes of stars or suns. In the first class are the clear, white stars like Sirius and Vega. These are supposed to be the hottest and the most luminous in proportion to the extent of their surface. In the second class are the golden, yellow or orange stars of which Arcturus and Capella are fine examples. The third class we see deep orange and red stars like Aldebaran, Antares and Betelgeuse.

Now the spectroscope informs us that our sun belongs to the second class or Arcturus type, and if we could view our sun in distant space we should see a star of golden yellow.

Alpha in Centaur is our nearest neighbor. It is about 220,000 times our sun's distance away from us, or about three years and nine months light distance away, and to place our sun at about half that distance it would shine with a brightness no greater than does Arcturus, which is about 180 light years, or about  $11\frac{1}{2}$  millions times our sun's distance away. Now Sirius is only about 17 light years away and to place our sun off the distance of Sirius it would shine with more than 1,000 times less light than Sirius. Let us try to understand this fact. If we place a lighted candle near to an arc light of 1,000 candle power, the candle will represent our sun and the arc light will represent Sirius. Now, so far as we know, nature pro-

duces everything just in proportion to the conditions surrounding the object produced, the conditions being previously produced by nature. Then what are the conditions of life upon planets that receive their life from a source more than a thousand times greater than ours? But Sirius is not the largest sun. We must go further.

Through the efforts of very able astronomers, with the assistance of modern discoveries and improvements in astronomical instruments, we learn that Arcturus is more than 500,000 times larger than our sun; that is, it would require more than 500,000 globes as large as our sun to make one globe as large as Arcturus. Our sun is about 1,300,000 times larger than the earth. The earth is 7,920 miles in diameter and the sun is about 866,400 miles in diameter, but Arcturus is about 70 millions of miles in diameter, or large enough to fill the entire orbit of Mercury. But we are speaking of our neighbors. Arcturus is but about 180 light years distant, we must go farther.

But first what is meant by a light year. The velocity of light is about 186,300 miles per second, that is to say, between the beats of the pendulum of an ordinary clock light travels a distance equal to eight times round the earth, or from the sun to the earth in about eight minutes and nineteen seconds a distance of about 92,793,500 miles. A light year is the distance which light travels in a year, that is, about 63,000 times the distance of the sun from the earth, or about five trillions, eight hundred and forty-six billions of miles.

Our nearest neighbor as I have already stated is Alpha in Centaur. This star is 220,000 times farther away than our sun, or about 20 trillions of miles, or as the Frenchman would say 20 thousand billions of miles, yet light



travels this great distance in about three years and nine months.

The Milky Way consists of between 20 and 30 millions of stars of which our sun is one of the smallest, and infinite space is filled with those star clusters like our Milky Way. Archipelagos of suns float isolated in the bosom of the heavens, and the heavens are infinite space—indefinite expanse—a void without limits—illimitable, infinite, indefinite. They are without shores, there is no frontier circumscribing them—they have no beginning, no end, no up, no down, no right, no left, no top, no bottom, no length, no breadth.

But there is an infinity of space which succeeds itself in every direction and is without circumference. In the bosom of this infinite space float rich clusters of suns like that which gives light and life to our earth. Suns whose numbers are as undefinable to man as space, go rushing through endless expanse with their trains of planets, and as they guide them in their respective orbits, they pour forth their magnetic streams of life on the surface of those worlds, nursing vegetable and animal life into existence, just in proportion to the conditions created there by nature.

To try to describe space and its endless numbers of worlds would be a barren hope, but we will try to keep some of them before us in order that they may reveal to us a part of the immensity of their value.

Now the velocity of light is about 186,300 miles per second. Allow me then, if you please, by a figure of speech, to place ourselves on a ray of light and be carried away in a straight line, taking the earth as our starting point. At the end of the first second we have already traversed 186,000 miles, At the end of the second 372,000. At the end of the third 558,000. We continue ten minutes

and we have traversed 111,600,000 miles. Passing on during an hour, a day, a month, or during a whole year and even a century, on, on, without ever slackening our pace; on, on, through multitudes of suns; on, on, through infinite space, indefinite expanse in the bosom of which are suspended archipelagos of worlds; on, on, without stopping, let us penetrate the expanse in a straight line. For a long time we have gone beyond the last star cluster seen from the earth with the most powerful telescope, but on, on, add other millions and billions of trillions of years to our flight; on, on, through other regions of space unknown and unexplored; on, on, let us join centuries to centuries with the same rapidity of 186,000 miles per second and we should be able to float for an eternity without ever finding anything before us but an eternal open space, in the bosom of which floats infinite numbers of worlds like the one in which we live. Worlds that receive their light and life from suns whose grand and glorious beauties in size, brightness and colors exceed all human description. But light is too slow, we must travel faster if we would penetrate space. In nature there is a movement incomprehensibly more rapid than light.

The mind of man is a reservoir of knowledge and knowledge is power. The human mind is supreme, and everything must give way before the mighty power of the intelligent mind. The mind of man is the soul of man, and the power of that soul is limited only in proportion to the amount of facts it possesses. The number of facts to be possessed is as unlimited as space.

Then let us test the power of the soul. Let the mind represent to itself at one time the number of systems seen and the distance traveled on the ray of light, and then allow the soul to place itself on the other side of the most infinite expanse of which the mind has been able to conceive.



Thus in one instant place ourselves on the other side of a space so great that it would require light hundreds of years to travel the distance, only to admire the sublime beauty of multitudes of suns, surrounded like ours with their families of planets, and the indescribable wonders constantly rising on the other side of the heavens, and going beyond the distant oceans, without limits, without shores, and other worlds will reveal themselves to our eager gaze. Worlds will succeed to worlds ; heavens will succeed to heavens ; space will succeed to space, and other immensities to other immensities ; after deserts of expanse other deserts of expanse will open up on other voids without limits ; other oceans without shores ; other worlds without end ; space without bounds, without circumference ; carried away without stopping, without rest ; with the rapidity of thought the soul would continue its flight for eternity, without our ever being able to take away from the one or add to the other. The spirit would be arrested ; overcome with fatigue at the very entrance of infinite creation. My dear friends we are no nearer a limit than if we had remained in the same place. For there is no limit. In truth the infinity of space and worlds is as eternal as time without end.

I am asked what are the opinions of the able thinking astronomers of all the world as to there being other inhabitable globes. I can only answer for the few that I have had the honor of knowing, as "Mother Grundy" has much to do with the opinions of many good writers. You will remember that I have stated that the earth's diameter is about 7,920 miles, and that more than 1,300,000 earths would be required to make one sun, and more than 500,000 suns would be required to make one globe as large as Arcturus.

Allow me then if you please, by a figure of speech, to

bring these mighty globes together and add to them Sirius, Antares, Betelgeuse, and let us pile globes upon globes until we have one mighty ball more than a hundred millions miles in diameter; then let us dissolve this mighty ball into little grains of sand so small that they would be just perceptible to the natural eye. Now if we could send one of these grains of sand to each inhabitable globe, when we should have used up all the grains of sand in this mighty ball, we should be apparently no nearer to supplying the inhabitable worlds than when we first began; no nearer than we came to the end of space. Again that grand and mighty truth comes fresh to our minds that the infinity of space and worlds are as eternal as the infinity of time without end. Let us not forget the lessons of today but return sometimes to think of nature's beautiful creation, and when tired with the dull duties of this world, let our souls be drawn away to mingle for a time with other worlds. And as we listen to the music of the spheres, rehearse each golden link of truth, for other mortal ears, for nature's truths must guide us through the eternal flights of years.

## TRUTH.

Truth is an expression of nature's grace,  
 Shining forth in every place,  
 Eternal as both time and space,  
 And must prevail in every case,  
 No power can mar its beauteous face,  
 Nor move it from its resting place;  
 No superstitious class of men,  
 Can change it from its aim and end,  
 But ever its beauty, love and grace,  
 Will prevail in every case.

WM. FRETTS.





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INHABITABLE



WORLDS.

